

$$F = ma$$

units:

$$N = (kg) (m/s^2)$$

mass \rightarrow amount of matter

weight \rightarrow force object exerts

related to its mass and acceleration

12. ^{weight!} $F = ma_E$ $m = 88 \text{ kg}$
 $a_E = 9.8 \text{ m/s}^2$
 $= (88 \text{ kg})(9.8 \text{ m/s}^2)$ $F = ?$
 $= 862.4 \text{ N}$

11. $\frac{F}{a_E} = \frac{ma_E}{a_E}$ $F = 600 \text{ N}$
 $m = ?$
 $\frac{F}{a_E} = m$ $a_E = 9.8 \text{ m/s}^2$
 $m = \frac{F}{a_E}$
 $= \frac{600 \text{ N}}{9.8 \text{ m/s}^2}$
 $= 61.2 \text{ kg}$

$$F = ma \quad m = \frac{F}{a} \quad a = \frac{F}{m}$$

14.

$$F = m a_m$$

acceleration due to gravity
on the moon

$$a_m = \left(\frac{1}{6}\right)(9.8 \text{ m/s}^2)$$
$$= 1.63 \text{ m/s}^2$$
$$= (85 \text{ kg})(1.63 \text{ m/s}^2)$$
$$= 138.8 \text{ N}$$
$$m = 85 \text{ kg}$$
$$F = ?$$